

RESEARCH

In the previous section of this report, you have learned what we did and what we learned by doing it. In this section, we show the research that was done prior to the development of the *Road Crew* and at the conclusion of the demonstration year. Eight studies were executed during the past three years in support of this project. The first three were conducted prior to receiving NHTSA funding so that we would have a better understanding of the target and the environment in which we would be developing the *Road Crew* ride service. These were:

- **Literature Review,**
- **Focus Groups with Expert Observers of the Target, and**
- **Focus Groups with the Target.**

As part of the two-year NHTSA grant, we completed five more research pieces. The first of these supported the development of all of our communications prior to the demonstration's onset, while the final four were done to evaluate what had happened in the three communities during the year-long demonstration. These studies were conducted to provide insights into evaluating the objectives of the project, as defined in the original proposal:

- **Testing the Position, Name, Slogan, Logo, And Advertising,**
- **Phone Survey to Determine Awareness and Attitudes of the *Target* and the *General Population* toward the Program,**
- **Phone Survey to Determine Awareness and Attitudes of the *Community Leaders* and the *Bar Owners and Wait Staff* toward the Program,**
- **Count of Rides Given Through Ride Logs, and**
- **Pre- and Post- Test with Treatment and Control Communities to Learn Level of Driving After Excessive Drinking By Bar Patrons.** (This last piece, a field experiment, also is referred to as the "**Bar Coupon Study**" below.)

Understanding the Target and the Environment

The following studies were done prior to the beginning of the demonstration. Their purpose was to generate understanding of the problem, the 21-to-34-year-old target market, and the environment in which we were working so that we then could assist communities in developing appropriate ride programs, their marketing, and their promotion. The first three of these studies were done prior to the onset of this grant. They are briefly summarized here; the complete report of these studies can be found in

Appendix A. The fourth study was to test our name, slogan, logo, and advertising. It is reported here as part of the text.

LITERATURE REVIEW

Goals: To learn the current prevalence of driving after drinking, what was known about those who drove after drinking, and what had been tried in the past to curb the behavior.

Method: A review of 178 studies done during 1996-1999. This phase was conducted during Spring 2000.

Results: See Appendix A.

FOCUS GROUPS WITH EXPERT OBSERVERS OF THE TARGET

Goals: To learn what the people who were in close contact with the target knew and felt about the target, their values, their life style, and the processes they went through in a typical day. To get suggestions from the experts regarding how to develop a useful alternative ride service.

Method: Seven focus groups were conducted during Summer 2000 with people who worked in the alcohol serving industry, people in law enforcement, social workers, public health workers, OWI class instructors, EMT personnel, people in the legal system, and friends and relatives of the target.

Results: See Appendix A.

FOCUS GROUPS WITH THE TARGET

Goals: To learn what the target felt about the ideas for creating an alternative ride service, how they might respond to such a service, and how they might improve upon the ideas we would be testing.

Method: Eleven focus groups were conducted during Fall 2000 with men, ages 21-34, who admitted to driving after excessive drinking. The focus groups were conducted in back rooms of taverns in a non-threatening environment. The groups were led primarily by moderators who were close to the target's demographic group.

Results: See Appendix A.

TESTING THE BRAND NAME

This study was executed in Spring 2002 to assist during the time when the ride service and its related communications were being formulated. While it was done more than a year after the first three studies, its purpose was still to provide developmental input to the project.

Goals: To learn which of several brand name concepts would resonate with the values, life styles, and symbols of the target.

Method: Thirty interviews were conducted in bars, where members of the target were shown various parts of the name and branding efforts, and asked for responses. Input also was received from Miller Brewing Company executives, Wisconsin Department of Transportation managers, and community leaders in the demonstration communities in order to derive output compatible with all views.

Results: *Road Crew* was favored by 19 respondents, with 15 selecting *Last Call*; other names did not gain approval of many respondents. Comments focused on the ideas of who it is for: "made for the working man" and "best move a working man can make." Others included "a fun and safe night out on the town" and "people that are willing to do a good deed with a cool name." We went through several iterations with the various sets of interested parties and the target, and eventually arrived at the materials used in the communities. We all agreed on the *Road Crew*. It seemed to fit with the brand character as being more rugged, cool and genuine. *Last Call* was also a bit limiting in the sense it might have implied a one-way ride home, when the communities would offer rides to, between, and from the bars.

Evaluating the Impact of the Program on Awareness, Knowledge, Attitudes, Perceptions and Behavior

The following four studies were pre- and/or post- tests focusing on changes in awareness, knowledge, attitudes, perceptions, and behavior related to our demonstration programs. The section begins with a discussion of the goals and methods associated with each study. The results are then reported across the studies as they relate to the various dependent variables. These four studies are meant to evaluate objectives 4, 5, and 6 in the original proposal which were:

- Objective 4: Change the knowledge, attitudes and behavior of the community institution members toward social marketing and the program.
- Objective 5: Change the knowledge, attitudes and behavior of the target group toward the program.
- Objective 6: Reduce the incidence of impaired driving by 5% per year and thereby reduce alcohol-related crashes, injuries and deaths by the same 5% in each community participating in the project.

PHONE SURVEY TO DETERMINE AWARENESS AND ATTITUDES OF THE TARGET AND THE GENERAL POPULATION TOWARD THE PROGRAM

Goals: To assess the awareness, knowledge and attitudes of the target and the general population at the end of the year-long demonstration. This study is a post-test-only design as there was no awareness of, knowledge of, or attitudes toward the program before we began. For the same reason, there is no need to study these variables in a control setting. (Proposal Objectives 4 and 5)

Method: A ten-minute phone survey was conducted amongst members of the general population and of the 21-to-34 year-old target population in each of the three demonstration communities. Members of the general population were reached using random digit dialing in the three communities. Lists of 21-to-34 year-olds were rented in each of the three communities. All calls were made during June 2003 by Wisconsin Survey Research. A copy of the questionnaire can be found in Appendix B.

The goal was to complete 400 interviews in the target population and 400 in the general population in each of the three communities. The interviewers completed the general population first. These 400 interviews represented the general population. Then a count was taken of the number of 21-to-34 year-olds interviewed as part of the general population. Additional 21-34 interviews were conducted until 400 were completed. As a result, some 21-34 respondents were part of both the general population sample as well as part of the 21-34 sample; in reality, these people are part of both populations. Each of these two samples represents its own population. In the actual execution, it was not always possible to get 400 completions due to the small sizes of the communities. Actual number of completions is as follows:

• Polk County general population	350
• Polk County 21-34	400
• Dodgeville-Mineral Point general population	350
• Dodgeville-Mineral Point 21-34	320
• Tomah general population	350
• Tomah 21-34	192

Table 1 shows the demographic characteristics of the samples derived for the general population and for the target group in each community. 16% of the general population consisted of people who were 21-to-34 year-olds, who tended to have more education and higher incomes. Gender splits were fairly similar across the older and younger samples.

PHONE SURVEY TO DETERMINE AWARENESS AND ATTITUDES OF THE COMMUNITY LEADERS AND THE BAR OWNERS AND WAIT STAFF TOWARD THE PROGRAM

Goals: To assess the awareness, knowledge and attitudes of the community leaders and the bar owners and wait staff at the end of the year long demonstration. This study is a post-test-only design as there was no awareness, knowledge or attitudes toward the program before we began. For the same reason, there is no need to study these variables in a control setting. (Proposal Objective 4)

Method: A twenty minute phone survey was conducted amongst members of the community leader population and the bar owner and wait staff population in each of the three demonstration communities. Each community coalition leader put together a list of community leaders and bar owners. The community leaders included elected officials, law enforcement personnel, business leaders, volunteer leaders, EMT personnel, and others active in the community. Table 2 shows a list of the backgrounds of the community leader respondents. Beginning with a list of bar owners, the coalition leader

then asked the owners for names of wait staff that were regular, long time employees. All calls were made during June 2003 by Wisconsin Survey Research. A copy of the questionnaire can be found in Appendix B. The questionnaire is similar to that used for the general population and target, but has more questions and more detailed questions.

The goal was to complete 25 interviews in the community leader population and 25 in the bar population in each of the three communities. Given the small number of respondents in each cell, no statistical tests should be considered. Most demographic questions were not asked of these two samples, as they didn't seem relevant to the issues. 71% of community leaders and 33% of bar personnel were male; 43% of bar personnel were owners. Actual number of completions is as follows:

• Polk County community leaders	25
• Polk County bar owners and wait staff	28
• Dodgeville-Mineral Point community leaders	27
• Dodgeville-Mineral Point bar owners and wait staff	14
• Tomah community leaders	25
• Tomah bar owners and wait staff	25

COUNT OF RIDES AS REPORTED IN THE RIDE LOGS

Goal: To know exactly how many rides were given. In seeking to learn our impact on behavior, OWI and crash information may be less useful as they are delayed, and are subject to other environmental biases (for example, level of OWIs can be managed by changes in the aggressiveness of the law enforcement agency in pursuing impaired drivers). In addition, the geographic units within which such data are collected did not correspond precisely with the boundaries of the ride programs, and the ride program boundaries tended to shift during the year as opportunities to serve rural areas increased or diminished. Counting each ride given may yield a clearer view of impact, as each ride represents an opportunity for an alcohol-related crash that could not occur. Even this measure is not completely clear though, as there was no way to know the degree of intoxication of any individual rider. (Proposal objectives 5 and 6)

Method: Each community kept a log of all rides given, as well as the age and gender of the rider, and the origin, destination, date, and time of each ride.

PRE- AND POST- TEST WITH TREATMENT AND CONTROL COMMUNITIES TO LEARN LEVEL OF DRIVING AFTER EXCESSIVE DRINKING BY BAR PATRONS (FIELD EXPERIMENT REFERRED TO AS THE "BAR COUPON STUDY" BELOW)

Goals: To learn the level of driving after excessive drinking that existed prior to the onset of the demonstration program, and again one year later. This pre- and post- test was conducted in the three demonstration communities (treatment) as well as in several communities where there would not be a ride program (control). The same process was executed in the month prior to the onset of the program, and during the last month of the demonstration in both the test and the control communities. This pre- and post- test with

control group design would allow us to assess the impact of the demonstration on various aspects of the behavior of the target. (Proposal objectives 5 and 6)

Method: In this study, we wanted to create an environment within which respondents would feel comfortable in answering honestly. This was important, as we were asking many people to admit to an illegal activity. Tell Us About Us, a marketing research firm, was hired to collect data through their computerized phone and data collection service.

Bar patrons were given coupon cards by the bar's wait staff. Patrons were told to pocket the coupon, read it the next morning, and then call the 800- number on the coupon. Patrons were offered a \$7 voucher for future non-alcoholic purchases at the tavern where they received the coupon; the coupon would be activated after the patron called the number and answered a few questions. Patrons were assured their responses would be anonymous. When calling the number, the patron heard an electronic female-like voice again assure them of anonymity and then tell them what to do. For each question the patron only needed to push a number on the phone keypad in order to respond. Upon completion, the patron was given a validation code that activated the coupon for use.

The questionnaire is shown in Appendix B. It includes questions about how patrons got home on the night they received the coupon, how much they drank on the night of coupon receipt, and how often they drove after excessive drinking during a typical two week period. This field experiment is referred to as the "bar coupon study" in the report of results below.

Table 3 shows the demographic characteristics for the respondents in the field experiment data collection. They are skewed toward being male and being over 35 years of age in the treatment and control groups, and across the two years. This reflects the informal feedback we had gotten from community coordinators and bar owners in conversations during the project.

Compared to the demographics of the respondents in the general population telephone survey sample, the respondents in the 2003 treatment group bar sample are more likely to be male (65% versus 37%), and more likely to be younger (35 % were 21-34 versus 16% in the general population).

Limitation: When the demonstration project began there were four treatment communities in place, but one of these was not able to get their ride service into operation. As a result, we took the pretest data from this community and placed it into the control group, and then kept it there for the posttest as well. While our ride program was never implemented in this community, there was a Wisconsin Tavern League Safe Ride program in place. This did not impact on the treatment execution, but may have led some control group respondents to respond with respect to the Safe Ride program rather than with respect to our non-existent program. The result of this confusion could be to lessen some of the differences between the treatment and control groups.

Results

The results are presented by dependent variable, since we often used multiple methods to understand a particular issue. The order of the presentation of dependent variable data will proceed from awareness to knowledge to attitudes to behavior. The specific study being referred to in the results below will always be one or both of the phone surveys, unless stated otherwise.

AWARENESS

The four sets of respondents described above in the methods sections (general community population, referred to below as [GEN], 21-to-34 year-old target [TGT], community leaders [LDR], bar owners and wait staff [BAR]) were asked “*Have you heard of any programs in your community to try to decrease driving after excessive drinking?*” Those who were unaware in response to that question were then asked “*Have you heard of a program in your area that provides rides to and from bars so that people who have had too much to drink can have a ride home?*” Table 4 shows the aggregated awareness across the two questions. Over the three communities and the two questions, awareness of our program was 68% [GEN], 71% [TGT], 99% [LDR], and 100% [BAR]. There often were differences in responses to questions across the three communities. Readers wishing to look at the data by community can do so by referring to the appropriate tables in appendix C.

Except as noted, all remaining questions in the telephone surveys were asked only of respondents who had shown awareness in response to one of these two awareness questions.

Note that the names of the contacts for the LDR and BAR samples were submitted by the coalition leader in that community, so one would expect awareness to be close to 100%. While awareness was almost certain, responses to other questions would not be preordained, as many of those interviewed were quite skeptical of our project when we first began working with the communities. Since the three communities were quite small, the lists of submitted names represented a large percentage of the total population for each community and category.

In the 2003 bar coupon study, there was 82% awareness in the treatment group, and 50% awareness in the control group. Awareness in the control group perhaps can be attributed to the presence of a well established Wisconsin Tavern League Safe Ride program in the largest of the control group communities, as well as to some yea-saying.

In the treatment communities, there was 77% awareness among 21-to-34 year-old men and 89% awareness among 21-to-34 year-old women. Awareness for 21-to-34 year-olds was higher here than in the phone survey, as all of these respondents were in bars and therefore were targeted most precisely as potential users. One would also expect a different level of response from the phone surveys, as the two questions and two methods differed.

KNOWLEDGE OF PROGRAM COMPONENTS

Those who were aware were next asked “*How does the program work? Tell me what you know about it.*” Table 5 shows the number of people who were able to describe at least one aspect of the program. Of those who were aware in the three communities, 79% [GEN], 90% [TGT], 96% [LDR], and 99% [BAR] were able to describe at least one facet of the program. Since the three ride programs differed across the three communities, the level of knowledge and aspects of knowledge differed by community. Table 6 shows which aspects of the programs were most likely to be well known in each community.

KNOWLEDGE OF BRAND NAME

Another measure of knowledge was tapped by focusing on the name of the ride program. While we developed the name “*Road Crew*” for the program, two of the communities decided that they wanted to use their own names (“Party Barge” and “Take a Cab on our Tab”). In addition, the state had provided funding for the Tavern League of Wisconsin to also develop a program to give rides home from bars. This program, known as the “Safe Ride” program, was well known in the state, although it was not operating in Dodgeville-Mineral Point or in Tomah during our demonstration. We asked respondents “*What is the name of the program?*” If they were unable to respond, we followed with “*Have you heard of a program called....*,” and then read each of the four names. Table 7 shows correct and incorrect knowledge of the four names.

In the aggregate, the correct name was identified by 62% [GEN], 77% [TGT], 81% [LGR], AND 97% [BAR] across the three communities. Data are presented by community, as each community had selected a different name. In Polk County the Party Barge name was known by 76% [GEN], 92% [TGT], 88% [LDR], and 100% [BAR] of the several samples. Safe Ride has a presence here and was known by 31% [GEN], 36% [TGT], 68% [LDR], and 93% [BAR] of the four samples. In Dodgeville-Mineral Point, the *Road Crew* was the name in use and it was known by 52% [GEN], 80% [TGT], 85% [LDR], and 100% [BAR] of the samples; Safe Ride, which was not in place, was incorrectly retrieved by 35% [GEN], 43% [TGT], 41% [LDR], and 63% [BAR] of the respondents. In Tomah, Take a Cab on our Tab was known by 60% [GEN], 59% [TGT], 71% [LDR], and 92% [BAR] of the respondents, while Safe Ride was incorrectly retrieved by 30% [GEN], 36% [TGT], 71% [LDR], and 40% [BAR] of the respondents.

SOURCES OF AWARENESS AND KNOWLEDGE

Respondents were next asked how they had come to know about the program. They were first asked “*How did you first learn about the program?*” and then asked “*Where else have you seen news, publicity or advertising for that program?*” The first question was asked without giving any cues, while the second was followed by a reading of each item on the list shown in Table 8. This table shows the responses combined across the two questions. Across the three communities and four samples, the most common responses were word of mouth/other people, newspaper articles, newspaper ads, and posters in bars. Responses varied across communities in accordance with the tactics used in that community. For example, Dodgeville-Mineral Point created a television commercial which was not seen in the other communities. The reader should keep in mind that respondents are typically poor at remembering the source of information and often

respond with the usual dominant sources regardless of how the information actually was acquired.

CONCERN ABOUT DRINKING AND DRIVING

The following two sets of questions were asked of all respondents (aware and unaware) in each sample at the end of the interview. The data are reported here to enhance the narrative flow of the report.

Respondents who were aware of the program were asked “*Before this program began, did you feel that drinking and driving in your area was a major problem, somewhat of a problem, a minor problem or no problem at all?*” Those who were unaware were asked the same question, but the first phrase was “*Before this call today....*” Across all respondents, 76% [GEN], 75% [TGT], 89% [LDR], and 78% [BAR] felt that drinking and driving was either a major problem or somewhat of a problem. Those who were unaware were less likely to respond in this way and more likely to see it as a minor problem or no problem at all. See Table 9.

Next all respondents were asked “*In your community as a whole, how concerned are residents with drinking and driving?*” A 5-point scale of responses went from very concerned to very unconcerned. 80% [GEN], 79% [TGT], 87% [LDR], and 90% [BAR] of the samples felt that the community residents were very or somewhat concerned. Again, respondents who were unaware of the program were less likely to see this level of concern, and more likely to feel the community was somewhat or very unconcerned. See Table 10.

GENERAL ATTITUDES

The first attitude question was broad, and asked respondents who were aware “*How do you feel about the ride program in your area?*” The five possible responses ranged from very positive to very negative. 90% [GEN], 91% [TGT], 85% [LDR], and 98% [BAR] of the samples responded with very or somewhat positive attitudes, while 2-4% of each group responded with very or somewhat negative attitudes. There is little variance across samples or communities. Table 11 shows these data.

ATTITUDES TOWARD POSITIVE AND NEGATIVE FEATURES

Respondents next were asked the open-ended question “*What do you think are the positive features of this ride program?*” This was followed by the identical question seeking negative features. Table 12 shows the major positive features, while Table 13 shows the major negative features.

The most positive features were “reduce/eliminate drunk drivers on the road,” “keeps people from drinking and driving,” “safer for the one drinking/for others,” “don’t worry about OWIs / not driving drunk,” and “less accidents/can’t cause accidents.” There were over 50 other categories of positive answers.

The most often cited negative feature was encourages drinking/undisciplined drinking, and was mentioned by 11% [GEN], 12% [TGT], 25% [LDR], and 0% [BAR] of

respondents. Most respondents could not think of any negatives. There were over 60 other categories of negative responses; typically each came from less than 1% of the respondents.

IMPROVING THE PROGRAM

LDR and BAR were asked “*How would you go about improving the program?*” Table 14 shows their responses. LDR mentioned “advertise more/signs” (27%) and make it more widespread/countywide” (10%). None of the other 14 responses captured more than 6% of the respondents. BAR also selected “more advertisement/promote program more” (21%), as well as “expand the fleet of vehicles” (14%) and “run everyday” (14%). There were 13 other responses, each mentioned by only one person.

PERCEPTIONS OF POSITIVE AND NEGATIVE IMPACT

Respondents were asked to think about the possible impact that the program had on their community. They were asked “*Do you feel the ride program has had any positive impact on your community?*” If yes, they were asked “*What positive impact has it had?*” These were followed by the identical questions seeking negative impact. Tables 15 and 16 show the numbers who felt there were positive or negative impacts, while Tables 17 and 18 list the primary types of positive and negative impacts.

61% [GEN], 75% [TGT], 79% [LDR], and 99% [BAR] of respondents felt that the program had a positive impact on their community, while 83% [GEN], 89% [TGT], 89% [LDR], and 100% [BAR] felt that there was no negative impact. Most commonly perceived positive impacts included “gets people off the road/keeps drunks off the road,” “saw several people using it/lots of people use it,” and “fewer accidents.” There were 25 other categories of responses.

Less than 3% of respondents felt there was any negative impact. Of the almost 2000 respondents, only 35 saw any negative impact. These focused on “encouraging people to drink more” and “justifies chemical abuse.” There were two negative impact thoughts across all the community leaders. One leader thought that a specific small part of the program was a waste of money, while one thought that the program condoned excessive drinking. When we asked how the program could be improved, the single response received (one person) was to eliminate it.

Community Interest: In response to “*Has anyone in your community said anything to you regarding this program?*” 63% of community leaders and 79% of bar personnel reported that others had said something to them about the program (Table 19); the responses tended to be positive (Table 20).

Should/Will the Program Continue?: We also asked the community leaders and bar personnel to look forward on two dimensions. “*Do you feel that your community should continue this program?*” and “*Do you think that your community will continue this program?*” 88% of community leaders and 99% of bar personnel felt that the program should continue, while 64% and 85% felt that it will continue. Most of the remaining community leaders didn’t know if the program would continue; few were negative.

(Tables 21 and 22) Respondents were then asked why they felt the way they did. Table 23 shows the reasons for the positive responses; these are generally consistent with earlier responses dealing with highway safety and keeping impaired drivers off the roads. Negative responses are not listed here as there were so few of them.

On a related issue, LDR and BAR respondents were asked *“How do you feel about programs such as this one, which try to change behavior in the community?”* 86% of community leaders and 94% of bar personnel either strongly or somewhat supported this type of program. (Table 24)

BEHAVIOR AND PERCEPTIONS OF BEHAVIOR

Behavior was the most important dependent variable in this project. Was there any evidence that driving after excessive drinking could be reduced using a social marketing framework? All the research aspects of this project attempted to shed light on behavior. The next few sections begin with knowledge and perceptions of behavior, and then move to actual behavior. Behavior covers amount of drinking, number of bars visited, as well as driving after excessive drinking. Since the goal of the project was to decrease driving after drinking, but not necessarily to impact on drinking, it would be possible for drinking to increase while still allowing for a decrease in impaired driving.

Perceptions of changes in drinking behaviors and in driving behaviors: We wanted to learn what changes were perceived to have occurred in the communities over the year of the demonstration. The questions and responses in this section do not show actual change or amount of change, but, rather, show the percent of respondents who felt that a certain change had taken place. The introduction to this set of questions was *“Now, I’d like to ask for your opinion of changes that may have happened in your community since the beginning of the ride program.”*

The first question in this series asked *“With respect to the number of people going to bars, do you think that this has increased, decreased, or stayed the same?”* Most respondents (66% [GEN], 78% [TGT], 62% [LDR], and 73% [BAR]) felt this stayed about the same. For community leaders, 7% felt there had been an increase while 32% didn’t feel they knew what change had taken place. Among bar personnel, 27% felt they had seen an increase. (Table 25)

When asked a similar question with respect to *the amount that people are drinking in the bars*, 63% [GEN], 76% [TGT], 68% [LDR], and 84% [BAR] felt there was no change. 12% of the target and 16% of the bar personnel felt that the amount that people are drinking had gone up. Amongst community leaders, 24% felt they didn’t know if there had been a change. (Table 26)

When asked *“With respect to where people drink, do you think that people now are more likely to drink at home, drink at bars, or there isn’t much change in drinking habits?”*, most respondents felt there wasn’t much change (53% [GEN], 71% [TGT], 55% [LDR], and 55% [BAR]). Note, though, that 26% [GEN] and 24% [LDR] felt that people were now more likely to drink at home, while 14% [TGT] and 27% [BAR] felt that people

were now more likely to drink at bars. (Table 27) The TGT and BAR samples should, perhaps, have a closer view of reality with respect to this question.

In addition to the above perceptual questions, which had been asked of the four samples, the following perceptual questions were asked only of the community leaders [LDR] and the bar personnel [BAR]. These were intended to give a more detailed view of what had happened in the three communities during the year of the demonstrations; we felt that the community leaders and bar personnel would have the best sense of what was happening with respect to these next few issues.

The first of these questions was “*Has there been a change in sales?*” in the bars. 14% of the community leaders thought that sales had gone up, while 39% didn’t know. Responses from bar personnel were clearer, as they should have a better view of this issue. Here, 34% thought there had been an increase in sales, while 61% thought there had been no change. (Table 28)

To the question “*Has there been a change in individual consumption levels?*,” community leaders either thought there was no change (67%) or they didn’t know (29%). While 81% of bar personnel thought there was no change, 16% thought there had been an increase. (Table 29)

“*Has there been a change in the number of customers?*” led 17% of community leaders and 37% of bar personnel to respond that they felt there had been an increase. (Table 30) This question and the previous two attempted to deal with consumption changes. Prior to beginning the project, bar owners had told us that their business was declining because patrons would rather stay home to drink rather than risk an OWI conviction on their way back home. We felt that providing rides might yield a secondary effect of bringing people who had been drinking at home to the bars, although individual consumption levels should stay fairly constant. From the perceptions of the community leaders and bar personnel, one might conclude that there was an increase in the number of people drinking in bars, and that this increase in patronage could have come from people who were previously drinking at home. In addition, there was a perception amongst a minority of respondents that individual consumption levels also had increased.

In the previous questions, observers were asked about their perceptions of the drinking behaviors of others. Next we report what we learned when we asked the drinkers to give us a self report of their own drinking; these responses could be analyzed both over time and between the treatment and control communities.

Drinking Behavior: In the bar coupon field experiment, respondents were asked “*On the night that you received this coupon, how many drinks did you have?*” Overall, number of drinks increased between 2002 and 2003 in the treatment communities, but decreased in the control communities. In the 21-to-34 year-old group, the treatment group had no change, while the control group had a decrease. There was, though, an increase in drinking amongst 35+ people in the treatment communities.

To test the statistical significance of effects in the field experimental data set, we used analysis of deviance residuals, evaluating age, gender, year, group (treatment versus control), and group-by-year interaction effects in that order. The resulting likelihood ratio chi-square statistics are reported below with corresponding p-values for classical hypothesis testing. Effects with p-values of less than .05, .01, and .001 were judged to be statistically significant at those alpha levels.

As seen in Table 31, Poisson regression shows there is a significant impact of age ($X^2 = 27.31$; $p < .001$), gender ($X^2 = 133.29$; $p < .001$), and treatment versus control ($X^2 = 22.63$; $p < .001$) on number of drinks. As there is no interaction between treatment and year ($X^2 = 1.54$; ns), one can conclude that the treatment had no significant effect on the outcome. In the treatment group, the increase in consumption seems to come from older men and women and younger women, but not from younger men (the prime targets of the campaign).

Number of Bars Visited: In the field experiment, respondents were asked “*On the night you got this coupon, how many bars did you visit?*” As with the previous issue, it would be possible for people to visit more bars yet drive less if they were using the ride service. Given that the treatment and control communities were of different sizes, the likelihood of people going to more or fewer bars would be related in part to the number of bars available. To neutralize this potential confound, this variable was analyzed by looking at the probability of visiting more than one bar, rather than looking at number of bars visited. The probabilities shown in Table 32 reflect the percent of respondents in each cell that visited more than one bar on the night in question.

The probability of visiting more than one bar increased between 2002 and 2003 in the treatment communities, but stayed fairly constant in the control communities. Logistic regression shows a significant impact of age ($X^2 = 42.81$; $p < .001$), gender ($X^2 = 17.59$; $p < .001$), year ($X^2 = 10.24$; $p < .001$), and the treatment x year interaction ($X^2 = 4.01$; $p < .05$) on the probability of visiting more than one bar. The interaction effect confirms that the program did have an impact on number of bars visited. With rides available, it seems that people used the service to visit more bars. This effect can be seen across both age groups and genders to varying degrees in the treatment, but is generally not present in the control communities.

Perceptions of Related Behaviors: The next series of questions related to perceptions of some other behaviors. In response to “*Have you seen an increase or decrease in the use of other designated driver plans since the beginning of the program?*,” about a third of community leaders felt that there had been an increase in the use of designated driver programs, a third saw no change and a third didn’t know. About a quarter of bar personnel saw an increase, half saw no change and a quarter didn’t know. (Table 33)

In response to “*Have you noticed that people who had used other designated driver programs in the past have switched over to the new ride program?*,” almost half of both sets of respondents felt that this had happened, and most of the remaining respondents didn’t know. As will be shown below, data in the bar coupon study show that the greatest

number of riders seem to have come from those who had some sort of ride available to them in the past. (Table 34)

When asked “*Do you feel that the people who are using the new ride program would have used other programs anyway?*,” responses don’t seem to indicate any strong prevalence of feeling about how things might have developed in the absence of the *Road Crew*. (Table 35)

A key question following up on this issue was “*Do you feel that people are taking more or less responsibility for their drinking now that there is a ride program?*” 62% of community leaders felt that people were taking more responsibility while only 7% felt that people were taking less responsibility. Similarly, 75% of bar personnel felt that people were taking more responsibility. (Table 36)

Mode of Transportation Used: In the bar coupon field experiment, respondents were asked “*On the night that you got this coupon, how did you get home?*” Respondents could then key in a response on the touch pad of their phone. The choices were: “drove myself home,” “used a ride service such as the *Road Crew*” [Note that the appropriate brand name was used for each community; note also that this option was not offered in 2002, as there was no ride service available.], “public transportation such as a bus or taxi,” “someone else drove me home,” “walked,” “none of these describe how I got home.”

Table 37 shows that the dominant mode of transportation in both years was “drove myself home.” Next most common in 2002 and for the control in 2003 was “someone else drove me home”; for the treatment group in 2003, “used a ride service” was the second most common mode and “someone else drove me home” was third. When looking at all 2003 treatment respondents, it appears that the shift of modes between the two years primarily comes from “someone else” and goes to “ride service.” When looking at 21-to-34 year-old men, the shift comes equally from “drove myself” and “someone else”; when looking at 21-to-34 year-old women, the shift comes from “someone else,” but not from “drove myself.” The goal of the project was to get 21-34 men to shift from driving themselves home to using the ride service. These data seem to indicate that this is what has happened. In addition, many people seem to have shifted from “someone else” to the “ride service.”

Perceptions of Alcohol-Impaired Driving: Next, respondents were asked “*With respect to the number of people who drive after drinking excessively, do you think that this has increased, decreased, or stayed the same?*” 48% [GEN], 66% [TGT], 59% [LDR], and 81% [BAR] felt that this had decreased. (Table 38) Similarly, when asked the same question with respect to the amount that individual people are driving and drinking excessively, 37% [GEN], 48% [TGT], 42% [LDR], and 61% [BAR] felt that this also had decreased. (Table 39) For both these questions, almost all other respondents felt that either the behavior had stayed the same, or they did not know what had happened. Very few respondents thought there had been an increase in driving after excessive drinking.

Ride Service Usage by Individual Respondents and Known Others: GEN and TGT respondents were asked “*Have you, personally, ever used the ride service?*” 7% [GEN] and 19% [TGT] had personally done so. The last question asked in the 2003 bar coupon field experiment was “*Have you ever used the ride service?*” 58% of respondents in the treatment group and 28% in the control group responded affirmatively. Note, again, that the Safe Ride program was well established in one of the control communities. 76% of 21-to-34 year-old men and 62% of 21-to-34 year-old women in the treatment communities responded that they had ever used the ride service. This level of response is much greater than the 19% of all 21-to-34 year-olds in the three communities, but the respondents here came from those who were in a bar on the night that the coupons were distributed and were therefore closer to the exact target that was sought. Note also that the scenario within which people responded differed. The most precisely stated goal of the project would be to reduce driving after excessive drinking among 21-to-34 year-old men who spent time in bars. 76% of that specific group reported that they used the ride service at least once during the demonstration year.

GEN and TGT respondents also were asked “*Do you know of anyone in your community who has used the ride service?*” 38% [GEN] and 61% [TGT] of respondents knew someone who had used the ride service. (Table 40)

ACTUAL COUNT OF RIDES TAKEN

The most direct measure of success of the program was a count of the number of rides taken. Table 41 shows that 19,757 rides were taken over the year of the demonstration. While we aimed the program at 21-to-34 year-olds, and especially 21-to-34 year-old men, we were willing to give rides to anyone in need. Note that Tomah ran its ride program seven nights per week; Polk County and Dodgeville-Mineral Point only ran on Friday and Saturday nights.

Table 42 shows rides taken from home to bar, between bars, and from bar to home. These data are presented by calendar quarter to show trends in the development of the services, as well as by community to show differences between the programs. The bar coupon data show that the average number of bars visited in an evening was about two. Ideally, then, about one third of rides should have been taken in each of the three ride segments. This was not the case. Over the three communities and the entire year, 8% of the rides went from home to bar, 52% went from bar to bar and 41% went from bar to home. Note though, that in the fourth quarter, the percentages had changed to 7%, 47%, and 46%. These percentages differed greatly between communities. In Tomah 90% of the rides given were from bar to home. In Polk County 76% of rides were between bars, although it was being reduced as the year progressed, and was 65% in the final month. In Dodgeville-Mineral Point 44% of rides were from bar to home and 41% were between bars.

Initially patrons were more likely to use the service to go between bars and then drive themselves home. When we saw this trend, we worked with the communities to focus more on not letting patrons drive themselves home; by the fourth quarter this shortcoming was being remedied. In addition, insufficient numbers were taking the ride

service to the bars, and this remains an opportunity for the communities for further development.

In the bar coupon study, “number of alcohol-impaired drivers” was derived by combining two questions, “*How did you get home on the night you received the coupon?*” and “*How many drinks did you have on the night you received the coupon?*” Commonly accepted guidelines for intoxication are five or more drinks for a man and four or more for a woman; these were used as the arbitrary standards here. Table 43 shows changes amongst the 21-to-34 year-old respondents (the primary target) in the treatment and control communities between 2002 and 2003. Overall, there is no significant change in impaired driving on the night that the bar coupons were distributed. Logistic regression shows there is no significant impact of age ($X^2 = 1.33$; ns), year ($X^2 = .89$, ns), treatment ($X^2 = 3.32$; ns), or interaction between treatment and year ($X^2 = 2.01$; ns). There is, though, a gender effect ($X^2 = 36.77$; $p < .001$) that one would expect, given that men do more of the driving than women in our setting. As there is no interaction between treatment and year, one can conclude that the treatment had no significant effect on the outcome of reducing impaired driving on the single night when coupons were distributed in the bars. Next we consider whether there might be an impact if the observation period is longer.

Another way to estimate alcohol-impaired driving in the field experiment was to ask: “*In a typical two-week period, on how many nights do you have five or more drinks and then drive yourself home?*” [Note: For women, four or more drinks is considered to be a close approximation of the level at which driving is impaired. Due to the nature of the automated computerized questionnaire, we felt it would be too complicated to ask this question in its complete and more complicated manner, so we traded off specificity for clarity. The result would be that impaired driving by women is understated here.]

Table 44 shows the mean number of admitted instances of alcohol-impaired driving that occurred amongst the 21-to-34 year-old respondents (the primary target) within a two week period. Poisson regression shows significant age ($X^2 = 4.88$; $p < .05$), gender ($X^2 = 107.69$; $p < .001$), year ($X^2 = 26.18$; $p < .001$), treatment ($X^2 = 9.17$; $p < .01$), and year x treatment interaction ($X^2 = 4.85$; $p < .05$) effects. The age effect is driven by younger respondents; the gender effect is driven by men. There is a decrease in alcohol-impaired driving in 2003 over 2002, and among respondents in the treatment group over the control group for 21-to-34 year-old respondents. Finally, and most noteworthy, there is an interaction. There is a change between 2002 and 2003 in the treatment group that is significantly larger than that shown in the control group. That is, the ride program led to a lower frequency in self-reported incidents of alcohol-impaired driving. When one looks at the data across all respondents, the effect is masked because the desired change did not occur amongst those who were over 34; the *Road Crew* was aimed at 21-to-34 year-olds, and seems to have had an impact on them.

In the Discussion section which follows, we attempt to interpret the findings reported above in this section.

Discussion

Almost 20,000 rides were given to potentially impaired drivers in a single year in three small communities. How did this come about? What reasonable conclusions can we draw about what happened in the three communities in the past year? In addition, what is the potential impact of these rides? How many crashes could we surmise may have been avoided, and how does that number relate to past crashes in the three communities? What inferences can be made about the costs and benefits of our program compared with the costs of alcohol-related crashes. What else do we know and what can we infer about these 20,000 rides? What context can we create to give greater meaning to the 20,000 rides? These issues are considered in this section of the report.

WHAT HAPPENED IN THE THREE COMMUNITIES?

We began the *Road Crew* in three communities where there could be no prior awareness of what we planned to do, and when we first presented our ideas in the communities there were many negative and/or uncomfortable feelings amongst the community leaders. From that start, we raised awareness through the bar posters, other ads, newspaper pieces, the visibility of the vehicles, and lots of word of mouth that often was initiated by the bar personnel. Within the first year awareness rose to over 80% of bar patrons and close to 70% in the general community. As the patrons began using the ride program, word of mouth tales of its goodness spread and ridership increased. As ridership increased, there were noticeably fewer impaired drivers on the roads, and community feelings became favorable. By the end of the year, close to 90% of the community felt favorably about the ride program, and 86% of community leaders felt that they supported programs such as this one to try to change behavior in the community. In addition 88% of community leaders felt that the ride program should continue and, and 64% felt it would continue.

The clearest picture of the behavior change comes from the field experiment bar coupon data. Here one can see both what is happening over time and across the communities that had a ride program and those that did not have such a program.

A major concern amongst the community leaders and the public health community was that a ride program would lead to increased alcohol consumption. In the focus groups done before the program was ever developed, we had asked if a ride program would lead to more consumption; the typical response was “no, we’re already drinking as much as we can.” A review of the data seems to confirm this view. There does not seem to be an increase in individual level consumption.

There seems to be an increase in the number of people now going to the bars. It was felt that more people are now drinking in bars and fewer are drinking at home. This would be a logical outcome of the program. In the focus groups with bar owners that were done before the program was developed, we were told that fewer people were going to bars because they were afraid about crashing or getting apprehended on the way home. With rides available, it is reasonable that some of these people would return to the bars rather than drink at home.

The data show that there is little change in the percent of patrons who were driving impaired on the specific night of receiving the bar coupon, but that when asked about a two week period, the frequency of driving impaired had decreased significantly. One could conclude from these two seemingly contradictory results that the people who were driving impaired before the program are still doing so, but that they are doing so less often. They are seeing that there are occasions when it is important to have a car (for example, if a man's goal is to pick up a woman in a bar, it is important that he have a car so that he can take her home), but there are other occasions when he doesn't need a car (if he's out for a night of drinking and fun with a group of friends or his spouse, he doesn't really need a car). This logic would lead to a lower frequency of impaired driving for each individual, even though each individual still sees some need to drive while impaired.

In each year we asked respondents how they got home on the night they received their coupon. Since we don't have any way to know if we are talking to the same people each year, we cannot make strong statements about mode of transportation, but there are some observations that seem to make sense. Amongst 21-to-34 year-old men, there was a large drop in the percent who drove themselves home in the treatment community between 2002 and 2003; there was no similar drop off from other modes of transportation. Amongst 21-to-34 year-old women, there was a large drop in the percent who rode home with someone else in the treatment community between 2002 and 2003; there was no similar drop off from other modes of transportation.

Did women shift from their own organized ride programs to ours (this interpretation would not have an impact on road safety, but would cost the community to develop our program), or were women previously getting rides from a driver who might also be impaired (this interpretation would call for the presence of a ride service)? Our sense of the communities is such that we feel that men are more likely to be the drivers. This would mean that men would shift from driving themselves to using our program, but women would have been less likely to drive themselves and more likely to have been driven by a man. In Wisconsin, people often joke that the designated driver is the person who is still able to walk to the car. If this humor is somewhat accurate, then women may have shifted from getting a ride from an impaired driver to getting a ride in our program. We feel that women are now less likely to be driven home by an impaired driver.

POTENTIAL CRASHES AVOIDED

In the next three sections we will present a number of statistics and derivations of conclusions from those statistics. Each value will be preceded by a letter of the alphabet so that the derivation of later values can easily be shown.

We know that in 2000, there were

- (A) 37,508 OWI arrests¹, and
- (B) 9,096 alcohol-related crashes in Wisconsin²

In a NHTSA analysis, researchers concluded that in the United States in 1995 there was

- (C) 1 arrest for every 90 episodes of driving above the legal limit of alcohol consumption³, and
- (D) 1 arrest for every 790 episodes of driving within two hours of any alcohol consumption⁴.

Using the above, one can derive that there is

- (E)=(B/A)x C 1 crash for approximately every 371 episodes of driving while legally intoxicated [E = 1/371] and
- (F)=(B/A)x D 1 crash for every 3258 episodes of driving within two hours of any alcohol consumption [F = 1/3258].

Based on the bar coupon research in the taverns (Self reports of number of drinks consumed and mode of transportation home on the night of the research. Alcohol impairment was judged to be 5 or more drinks for a man and 4 or more drinks for a woman.):

- (G) 28% of respondents were alcohol-impaired drivers

And based on ride counts, we know that

- (H) 19,757 rides were given

Given the above we can begin to make estimates of the number of crashes that were avoided by giving these rides. At one extreme, if all riders were legally intoxicated then we avoided:

- (I)=H x E 53 alcohol-related crashes

At the other extreme, if all riders rode within two hours of any level of alcohol consumption, then we avoided:

- (J)=H x F 6 alcohol-related crashes

Based on the bar coupon data (G), we can estimate that we avoided

- (K)=H x E x G **15 alcohol-related crashes**

There still remains the uncertainty of knowing the level of consumption of any one of our riders, the day and time during which rides were taken, the knowledge that rides were related to being in bars, the knowledge that the typical respondent to our bar coupon survey consumed over five drinks in an evening, and the proclivity of Wisconsin residents to consume alcohol at levels above the national averages. While we don't know

any of these issues with certainty, there are sufficient data from our work and from other studies to allow us to make the above conservative estimate.

We suggest that this number is a close representation of a reality which cannot be precisely determined. It cannot be determined for the following reasons:

- complete crash data in Wisconsin is reported with an approximate two-year delay;
- the geographic regions covered in our program do not match any of the geographic reporting units in the state;
- the geographic regions covered in our program changed with time as the communities learned how to serve better their regions and as contiguous regions asked to be included in the program;
- given the small numbers of crashes in these communities, any change observed could be a random aberration from a previous year or the present year.

POTENTIAL IMPACT IN THE THREE COMMUNITIES

The population of Wisconsin in 2000 was approximately

$$(L) \quad 5,364,000^5$$

The population of our three communities was about

$$(M) \quad 50,000^6,$$

And represented about

$$(N)=M/L \quad .93\% \text{ of the state's population.}$$

If crashes and fatalities are spread evenly across the state, then one would expect about

$$(O)=N \times B \quad 85 \text{ crashes per year in these three communities.}$$

(Note that the 85 crashes were estimated for the three communities based on statewide data. A separate estimate was derived based on countywide data for the three counties in question. The resulting value was the same. Each of the three community ride service boundaries was established by the community's coalition in order to be a feasible working area, but, as a result, none correspond to municipal, county, or state boundaries that are commonly used to derive population or crash statistics.)

If our program eliminated the possibility for 15 (K) of these crashes to occur, then the program can be seen to have had the following impact in the three communities:

$$(P)=K/O \quad \mathbf{17.6\% \text{ reduction in alcohol-related crashes}}$$

A potential change of that magnitude might be large enough to be noticed in the communities, and, indeed it was. Across the different questions asked to the various

populations in the three communities, there was a recurring feeling that the roads were now safer and that alcohol-impaired driving was less. For example, 78% of the community leaders felt that this program kept people from drinking and driving.

While there is a temptation to generalize our results throughout the entire state or nation, this should be done with care. Our program was successful in three communities with limited prior forms of public transportation. We feel that our program could have a similar impact on any small community that does not have alternative rides available, but that the program would be less impactful in larger communities where alternative rides and public transportation are more readily available. Nevertheless, much of Wisconsin and the nation are comprised of small communities, and we feel our program could have a strong impact in many of them.

COST / BENEFIT ANALYSIS

In 2000, there were

(B) 9,096 alcohol-related crashes.

It is estimated that the total cost of alcohol-related crashes in Wisconsin in 2000 was

(Q) about \$512 million⁷.

This leads to

(R)=Q/B about \$56,000 cost per crash,

And the value of avoiding 15 crashes would be

(S)=R×K about \$840,000.

The direct funds allocated to the three communities include the grant awards, the fare collections for rides, community fund raising, payments made to staff for time committed to community work (as opposed to research and other non-direct community work). The total of these funds is estimated as

(T) about \$230,000

This leads to

(U)=T/K about \$15,300 cost per crash avoided

And a savings to all those impacted upon by crashes of

(V)=S-T about \$610,000

In projecting to the future, it would seem that the figures shown here would be relevant. The large up-front costs of doing research and getting the project underway would not need to be transferred to future communities or to future years for the present communities. One might expect startup and maintenance costs per community of about \$35-40,000, with an additional \$20-30,000 needed in the first year to cover the outside assistance required to guide the new community through its startup problems. These costs, to avoid several crashes, would appear to be favorable, given that the average overall cost to the community for each crash is about \$56,000. Perhaps 5 crashes were avoided in each of our small communities.

WHY DID WE SUCCEED WHEN OTHER PROGRAMS HAVE OFTEN FAILED?

We feel that there are many unique aspects to this program that contributed to its success:

Marketing versus education: Most programs to reduce driving after excessive consumption use messages to tell the target how it ought to behave. These campaigns are good at raising awareness and at convincing those who are already prone to behave appropriately to do so. We felt that most people were already knowledgeable about the societal position that they were not to drive while impaired. We also felt that the target we selected was unable to behave appropriately, even if it chose to do so. There were too many environmental barriers to keep them from “doing the right thing.” Marketing is appropriate under these conditions; with marketing the environment is changed to provide benefits for exhibiting the right behavior, and barriers in the way of such behavior are reduced to the extent possible.

Use of new product development marketing research: In order to develop a ride program that would meet the needs of the target, extensive research was done prior to developing the programs. This research mimicked the work that a firm would do in developing a new product. It investigated why the target “bought” the competitive brand, “I can drive myself home, no matter how drunk I am,” what the benefits were of this brand, what people disliked about the brand, what benefits they would like to see in a new brand (a ride program), what barriers would keep them from becoming users, and what decisions they made during the day that led them to end up at a bar at closing time, drunk and with a car. The research also considered the emotions and feelings related to the choices that the target made, so that the ride service would fit into their life style and values.

Strong interaction with the target at all stages of development: In a marketing perspective, the target is the focus of all action. Without relevant input from the target, it is difficult to create offerings that will appeal to the target and elicit the desired behavior. In this project the target was integral in early developmental research, in branding and positioning research, in the development of each community’s program, and then in making changes to improve the programs over time.

Local champions: While the conceptual work for this project took place away from the community, those communities that implemented well did so because there was a strong local force that was passionate about bringing a successful project to the community.

Many partners and partnerships: there were many broad coalitions of players who contributed at many levels with unique insights, expertise and resources so that the end product would work well.

- Private/public partners: Many of the public health and social issue problems facing our nation are too big to be solved by just one sector of our society. In this project, Miller Brewing Company and the Tavern League of Wisconsin joined us. Miller and the Tavern League have a long history of working with the Wisconsin Department of Transportation to try to lessen impaired driving. Without these partners, we would not have been able to gain access to the taverns and to the target for our research, and we would not have had support for the program itself. In addition, Miller made a significant financial contribution to the program, and Miller distributors worked in the communities to assist at the local level.
- State/local partners: This project succeeded because each set of players brought a unique set of expertise to the table. The state brought the research that described the target and product options in great detail, as well as a conceptual base of social marketing to help guide the decision making process. The local partners brought a detailed level of knowledge about the opportunities and constraints in each community, as well as the ability to tap local leaders and resources.
- Community coalitions of bar owners, law enforcement, drinkers, public health workers and community leaders: The breadth of the coalition leadership insured that people who normally might not interact on favorable terms, worked together to meet a common goal for community good.
- Concept/execution: This project succeeded because it was built on a strong conceptual base of social marketing theory, and then was executed by faithfully following the tenets of marketing and how they could be applied in this arena.

Concluding Thoughts

We began this project with several goals:

- To reduce alcohol-related crashes by 5% in our demonstration communities;
- To show the viability of the social marketing model;
- To leave the communities at a level where they could be self sustaining after the project funding ceased to exist;
- To give sufficient information so that other communities will be able to create similar successful ride programs in the future.

We believe that we have accomplished these goals, as we have demonstrated in the text. We also feel that we have developed a model that can be replicated in small communities throughout the United States that have limited public transportation options.

It is our hope that the first three communities will continue to have success in reducing alcohol-related crashes, and that following communities can achieve the same level of success. Alcohol-related crashes are a major source of injuries and fatalities in the United States every year, as well as being a major economic drain. We feel that the addition of social marketing strategies to the education and legal strategies already in place can lead to safer highways.

REFERENCES

¹ 2000 Wisconsin Alcohol Traffic Fact Book, Wisconsin Department of Transportation, 2002.

² *ibid.*

³ Drinking and Driving Trips, Stops, by the Police, and Arrests, National Highway Traffic Safety Administration, DOT HS 809 184, 2000.

⁴ *ibid.*

⁵ Census 2000 Data for the State of Wisconsin, U.S. Census Bureau, <http://www.census.gov/census2000/states/wi.html>

⁶ *ibid.*

⁷ 2000 Wisconsin Alcohol Traffic Fact Book, *op cit.*